

Instruction Set for Efficient Bit Stream and Byte Stream I/O

ABSTRACT

[088] A system and method provide unaligned load/store functionality for a processor that supports only aligned load/store instructions. An exemplary embodiment includes an extension adapter including registers for storing data and load/store buffers for realigning data. A processor executes aligned load/store instructions that transfer data in multiples of bytes. Instructions are included for transferring data between memory and the load/store buffers, initializing and transferring data, initializing and transferring data in numbers of bits, advancing or offsetting a data pointer, and for flushing the load/store buffers. In a preferred embodiment, the extension adapter comprises a wide register file for buffering full words of data, load/store buffers formed from multiple single-bit registers for buffering data bits and streaming data for use by the processor, and address generators for pointing to data or memory addresses.